

LUMINUS FOR TEACHING AND LEARNING

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Learning Management System, the LumiNUS

A learning management system provides a virtual space for distributing resources, communicating with students, conducting quizzes and tests, and managing students' grades without requiring high-level programming or web-designing skills. These systems have the potential to guide instructors through a module-planning process anchored in effective pedagogy and adapted to diverse student needs.

LumiNUS is the learning management system designed to facilitate and support teaching and learning at NUS. LumiNUS provides a wide range of resources and services, from simple administrative tools to complete online modules. It also enables students to access up-to-date online syllabus, download notes, submit assignments, manage projects, participate in discussion forums and online communities, watch live webcast lectures and take part in online quizzes and surveys.

Use of LumiNUS supports the University's emphasis on blended approaches that combine face-to-face and technology enhanced learning. LumiNUS provides academics with a web-based framework in which to situate the course materials for their module and the tools with which to manage communication and interaction with and amongst students. Table 1 gives an overview of the uses of LumiNUS.

Table 1: Uses of LumiNUS

Transmission	Disseminate content (e.g., lecture notes, presentation slides, readings); digital multimedia (e.g., audio and video lectures, images, infographics, film, animation)
Discussion	Asynchronous text forums; Synchronous webinars
Practice	Digital interactive tools with meaningful feedback on actions (e.g., online assessments with feedback)
Collaboration	Forums, Synchronous webinars, Project work
Creation	User-generated content creation, reflection, interrogation, knowledge building and sharing

LumiNUS for managing your modules

LumiNUS Workspace gives you an overview of all your modules and tools with which you can manage your module. LumiNUS has a rich set of online tools and resources – class & groups, forums, files, announcements, quizzes, polls, multimedia, lesson plan, surveys and weblinks that are designed to facilitate collaboration, communication and promote independent learning. You will also be able to create and access content banks or reusable content. Table 2 below provides of how you can use LumiNUS to manage your teaching.

Table 2 Using LumiNUS to manage your teaching and learning

Purpose	LumiNUS Tool
<p>Present basic module information Instructors can use LumiNUS to present basic module information.</p> <ul style="list-style-type: none"> a) Create a module in LumiNUS to include detailed module description – Synopsis, Learning outcomes, Pre-requisites, Teaching modes, Schedule, Syllabus, Practical work, and Assessment modes/policies b) Use as a lesson plan to provide a road map of what your students need to learn and how it will be done effectively before, during and after the face-to-face class time (Refer to Appendix 1) c) Provide quick access to reading lists, downloadable resources, and/or other information sources that will support students’ independent learning d) Provide links to external websites, resources and online tools e) Include Instructors’/tutors’ photograph and contact information 	<p><i>Module Description</i></p> <p><i>Learning Flow</i></p> <p><i>Files</i></p> <p><i>Weblinks</i></p> <p><i>Collaborators</i></p>
<p>Distribute module materials (handouts, notes, assignment tasks) Instructors can use LumiNUS to provide module materials and resources for use as a preparation for upcoming class or as a follow-up to any class.</p> <ul style="list-style-type: none"> a) Update the module syllabus on LumiNUS b) Organise files to improve structure, navigation, and usability c) Upload presentation slides, handouts, notes, assignments, worksheets, and readings before or after class, as appropriate d) Scan and upload documents or articles for assigned readings while adhering to NUS copyright policies e) Upload practice tests and online quizzes 	<p><i>Module Description (Syllabus)</i></p> <p><i>Files</i></p>
<p>Communicate with students Instructors can use LumiNUS to enhance communication with students.</p> <ul style="list-style-type: none"> a) Post announcements to remind students of assessment task reminders, assignment due dates, time-table or room changes, corrections or clarifications to materials and exam schedules b) Post information after each class (course materials, pre-readings, video recordings) to help students be better prepared for the next lesson c) Send e-mail messages to an individual student or all students using 	<p><i>Announcements</i></p>

<p>class roster</p> <p>d) Set up a discussion/chat to supplement in-class lectures/tutorials (Refer to the Resource guide on Facilitating Effective Online Discussions)</p> <p>e) Set up online tutorials to supplement in-class lectures/tutorials</p> <p>f) Solicit anonymous feedback on a concept or topic</p> <p>g) Set up an online grade book us, and post student marks on an ongoing basis</p>	<p><i>Forum/Chat</i></p> <p><i>Conferencing (Zoom)</i></p> <p><i>Surveys/polls</i></p> <p><i>Gradebook</i></p>
<p>Provide and receive feedback <i>Instructors can use LumiNUS to provide and receive feedback.</i></p> <p>a) Provide timely and constructive feedback – Use Comment/Mark and Annotate options to provide feedback for submitted student assignments</p> <p>b) Provide automated constructive feedback using the Feedback Display option</p> <p>c) Provide acknowledgement feedback once essays, papers, or assignments are received</p> <p>d) Receive feedback from students by encouraging them to participate in surveys (e.g., mid-semester feedback). Create questions that will allow you to gauge their overall experience or identify areas that may need to be fine-tuned</p> <p>e) Encourage students to use anonymous feedback to give feedback on your module, learning activities and assessment tasks</p> <p>f) Integrate online quizzes and exams that will provide you with invaluable insight (Refer to Resource guide on Designing Effective Online Assessments)</p> <p>g) Appropriately intervene in discussion threads to stimulate learner interaction</p>	<p><i>Files</i></p> <p><i>Quiz</i></p> <p><i>Survey/Poll</i></p> <p><i>Survey</i></p> <p><i>Quiz</i></p> <p><i>Forum</i></p>
<p>Provide additional/supplementary resources <i>Instructors can use LumiNUS to provide students with resources they could use for module assignments and encourage them to extend learning by communicating with tutors, peers, and/or experts.</i></p> <p>a) Post web resources and other related links to supplement a topic</p> <p>b) Provide opportunities for students to share information and ideas with the class online</p>	<p><i>Weblinks</i></p> <p><i>Forums</i></p>

<ul style="list-style-type: none"> c) Post exemplars of good work done by students (past and present) for student reference d) Set up additional group discussion areas or chat rooms allowing students to discuss and communicate on their projects e) Set up practice tests and quizzes f) Provide information or links to information on learning skills (i.e. reading the textbook, studying for tests, writing a report) and career related sites 	<p><i>Files</i></p> <p><i>Forums</i></p> <p><i>Quiz</i></p> <p><i>Weblinks</i></p>
<p>Supplement the classroom experience <i>Instructors can use the LumiNUS environment to supplement classroom delivery.</i></p> <ul style="list-style-type: none"> a) Post a weekly problem, or case study for students to discuss and debate b) Set up a discussion forum where students explore complex problems and case studies, or debate a topic – enables students to share information and ideas with peers c) Have students research a specific topic online, and write an essay or create a presentation based on that information and post them online for peer review d) Post a weekly test that is automatically graded e) Have students suggest resource that supplements a topic using the weblinks f) Set up group projects that incorporate the group discussion areas, and encourage students to contact each other via email g) Supplement in-class lectures/tutorials with online tutorials, meetings and/or webinars 	<p><i>Forum</i></p> <p><i>Quiz</i></p> <p><i>Weblinks</i></p> <p><i>Chat</i></p> <p><i>Conferencing (Zoom)</i></p>
<p>Develop enhanced digital materials <i>Instructors can use other computer applications to improve and enhance digital materials.</i></p> <ul style="list-style-type: none"> a) Add images, infographics, audio podcasts, audio clips or video clips b) Create Question Banks to create assessment questions, quizzes or enhanced MCQs c) Insert interactive elements (audio podcasts, video lectures, screencasts, mindmap) into. 	<p><i>Content Bank</i></p> <p><i>Multimedia/ Web lectures</i></p>

Implementing the 7 Principles of Effective Teaching in LumiNUS

The “*Seven Principles of Effective Teaching*” developed by (Chickering and Gamson, 1987) has been a guiding force for quality education, and represents a philosophy of engagement, cooperation, learning community, interaction, quality, and efficiency. These seven principles embodies the following characteristics:

- Encourages Student-Faculty Contact
- Encourages Cooperation Among Students
- Encourages Active Learning
- Gives Prompt Feedback
- Emphasizes Time on Task
- Communicates High Expectations
- Respects Diverse Talents & Ways of Knowing

Table 3 outlines the role of LUMINUS in supporting effective teaching and enhanced learning.

Table 3: Using LUMINUS to implement the 7 principles of effective teaching

Principle	Strategies	LumiNUS Tools for implementation
1. Encourage student-faculty contact	<ul style="list-style-type: none"> • Building the initial contact with students one week before class begins • Clarifying misunderstood concepts, and fielding questions • Checking students’ understanding of classroom policies, tests, or projects • Provide electronic office hours • Record chat room conversations for follow-up 	<ul style="list-style-type: none"> • Email / Class roster • Forum (Online discussions) • Poll • Web conferencing (Zoom)
2. Encourage cooperation among students	<ul style="list-style-type: none"> • Set up a “buddy system” or “project groups for collaboration” • Think-pair-share • Team assignment • Student submission for peer feedback/ evaluation 	<ul style="list-style-type: none"> • Class and groups • Assign class groups to discussion forums and chats • Files – student submissions
3. Encourage active learning	<ul style="list-style-type: none"> • Post weekly announcements to introduce the week’s topic • Require participation • Form learning teams; Require group-based publishing/submission of documents • Online quizzes 	<ul style="list-style-type: none"> • Announcement • Forum/Chat • Generate groups • Quiz
4. Give prompt feedback	<ul style="list-style-type: none"> • Acknowledgement feedback once essays/papers/assignments are received • Post answer keys and suggested answers hours after a test • Provide constructive feedback 	<ul style="list-style-type: none"> • Email • Quiz (to generate online quizzes/test) • In assessments and discussions

5. Emphasize time on task	<ul style="list-style-type: none"> • Timed quizzes • Extend classroom discussion online • Posting articles and readings • Posting notes and outlines 	<ul style="list-style-type: none"> • Quiz • Forum/Chat • Text and readings • Files/Syllabus
6. Communicate high expectations	<ul style="list-style-type: none"> • Clearly communicate your expectations including: learning outcomes, assignments, activities, due dates, grading scales, class policies • Post course rubrics • Post overall quiz statistics along with grades • Publish examples of high quality student work 	<ul style="list-style-type: none"> • Module Description; Syllabus • Files • Gradebook • Files
7. Respect diverse talents and ways of learning	<ul style="list-style-type: none"> • Vary types of quizzes and assignments • Collaborate in groups or work alone • Providing multiple content formats 	<ul style="list-style-type: none"> • E-assessments, one-minute tasks • Forums / chats • PDF documents, presentation slides, Audio/video podcasts, Video lectures, Screencasts, weblinks, simulations

Adapted from Chickering and Ehrmann (1997) Implementing the Seven Principles: Technology as a Lever

Using LumiNUS to implement Universal Design for Learning principles

Universal Design for Learning (CAST, 2011) promotes the design of inclusive classroom instruction and accessible course materials through its three core principles:

1. **Multiple methods of representation** to provide multiple ways for students to access information and build new knowledge.
2. **Multiple means of student action and expression** to provide various alternatives for students to demonstrate what they have learned.
3. **Multiple modes of student engagement** to support independent learning by tapping into students' interests, challenging and motivating them appropriately.

These three domains support the recognition networks and the what of learning, the strategic networks and the how of learning, and the affective networks and the why of learning. Table 4 outlines how LUMINUS supports in the implementation of the UDL principles.

Table 4: Using LumiNUS to implement UDL principles

Guideline	Strategies	How LumiNUS supports
Principle 1. Provide multiple means of representation (Recognition networks)		
Provide options for perception	<ul style="list-style-type: none"> • Vary ways to display information • Offer alternatives for auditory and visual information 	<ul style="list-style-type: none"> • <i>Module description/Learning Flow</i>: Use text with different fonts and colours • <i>Files</i>: offer resources, handouts, and readings in different media (text, video, and audio) • <i>Web lectures</i>: record online lectures
Provide options for language and symbols	<ul style="list-style-type: none"> • Clarify syntax and structure • Support symbols, mathematical expressions • Illustrate through multiple media 	<ul style="list-style-type: none"> • Learning Flow • <i>Module description/Learning Flow</i>: Use rich text editor to embed pictures, and videos • <i>Files</i>: offer variety of resources in different media (text, video, and audio) • <i>Quiz</i>: provide self-assessments
Provide options for comprehension	<ul style="list-style-type: none"> • Activate background knowledge • Highlight patterns, essential information, big ideas and relationships • Guide information processing and visualization • Support knowledge transfer and generalisation 	<ul style="list-style-type: none"> • <i>Survey</i>: use pre-reading surveys • <i>Learning Flow/Forums/Files</i>: Share essential goals and ideas • <i>Forum/Multimedia</i>: Use clear, open-ended questions that tap into the higher-order thinking levels of application, analysis, synthesis, and evaluation to start conversation thread • <i>Forum</i>: Create specific communities/threads to share ideas, and resources
Principle 2: Provide multiple means for action & expression (Strategic networks)		
Provide options for physical actions	<ul style="list-style-type: none"> • Vary methods for response and navigation • Optimise access to tools and assistive technologies 	<ul style="list-style-type: none"> • <i>Forum</i>: Get students to collaborate and share ideas using discussion threads; allow for student-initiated topics in the discussions • <i>Files/Surveys</i>: Support self-reflection
Provide options for expression and communication	<ul style="list-style-type: none"> • Use multiple media for communication • Use multiple tools for construction and composition • Provide varied levels of support for practice and performance 	<ul style="list-style-type: none"> • Use the various tools to plan engaging lessons • Get students to collaborate and share ideas using discussion threads; allow for student-initiated topics in the discussions • <i>Quiz</i>: Create self-assessments for practice • <i>Multimedia</i>: Create video lectures for revision

Provide options for executive functions	<ul style="list-style-type: none"> • Guide appropriate goal-setting • Support planning and strategy development • Facilitate management of information and resources • Monitor progress 	<ul style="list-style-type: none"> • <i>Learning Flow</i> • <i>Learning Flow/Files</i> • <i>Quiz</i>: Use reports to enable students to monitor their own progress
Principle 2: Provide multiple means for engagement (Affective networks)		
Provide options for recruiting interest	<ul style="list-style-type: none"> • Optimize individual choice and autonomy • Optimize relevance, value, and authenticity • Minimize threats and distractions 	<ul style="list-style-type: none"> • <i>Surveys/Polls</i>: to identify students' topics of interest; and vary assessments accordingly
Provide options for sustaining effort and persistence	<ul style="list-style-type: none"> • Heighten salience of goals and objectives • Vary demands and resources to optimize challenge • Foster collaboration and community • Increase mastery-oriented feedback 	<ul style="list-style-type: none"> • <i>Forums/Multimedia/Files</i>: Provide variety of resources • <i>Forums/Groups</i> • <i>Quiz (Rubrics)</i>: to provide feedback
Provide options for self-regulation	<ul style="list-style-type: none"> • Promote expectations and beliefs that optimize motivation • Facilitate personal coping skills and strategies • Develop self-assessment and reflection 	<ul style="list-style-type: none"> • <i>Files/Forum/Survey</i>: Allow students to self-reflect and get feedback from peers,

Adapted from CAST (2011) Universal Design for Learning Guidelines version

Appendix 1: Preparing a Lesson Plan

The Lesson Plan helps you to organise LumiNUS into weekly lecture schedules or topical schedules. You can include week-by-week or topic-by-topic tasks; assignments, readings and other learning activities that you want students in your class to review before and after your lectures and tutorials.

A lesson plan is a road map of what your students need to learn and how it will be done effectively before, during and after the face-to-face class time. To do this, the first and most important step is to identify the learning objectives for each class or topic keeping in mind your learning outcomes for the module. An effective lesson plan will need to tightly integrate the following three key components:

1. Intended learning outcomes (ILO)	Thinking about the following questions, will provide a good starting point: <ul style="list-style-type: none">○ What is the topic of the lesson?○ What do you want your students to learn and be able to do at the end of the lesson?○ What do you want your students to take away from the lesson?
2. Teaching/learning activities (TLA)	Plan the specific learning activities and think of different ways of explaining the material (e.g., real-life examples, analogies, visuals, infographics, videos, simulations). Think about the following to design the learning activities: <ul style="list-style-type: none">○ What can you do to explain/illustrate the topic?○ How can you engage students in the topic?○ Are there relevant real-life examples, analogies, or situations that you can use help students understand the topic?○ What can students do (self-direction) to help them understand the topic better?
3. Assessment tasks (AT)	Plan for ways to check on student understanding. Thinking about the following questions will give you ideas on how to assess: <ul style="list-style-type: none">○ What can you ask students to check for their understanding?○ What can you do to get students to demonstrate their understanding?

Specifying concrete student learning outcomes will help you determine the kinds of TLAs you will use, while those activities will define how you will check whether the ILOs have been accomplished using the designed ATs. Keeping students informed of what they will be learning and doing in class will help keep them more engaged and on track.

Week 2: 15 Aug 2016 - 19 Aug 2016

TUTORIAL 1: INFORMATION LITERACY USING PESTLE FRAMEWORK
SEMINAR ROOMS A, B & D (RVRC)

Continuing from the last segment of Lecture 1 last week, where Kah Wei emphasized the need for **Evidence-Based learning**, this tutorial introduces skills that are critical for all meetings, tutorials & project work in GEM1917.

This tutorial will be conducted and graded in **groups of 3 students**, and it accounts for **5% marks** of the module. Students will be graded during class based on their group presentations.

PESTLE will be used as a framework of enquiry for considering macro factors **Politics, Economics, Social, Technology, Legal and Environmental**, when searching for information sources for research and also for conducting a comprehensive sustainability assessment.

The learning objectives of the tutorial are to enable you to:

- Be familiar with resources available to you at the NUS Libraries.
- Search effectively and efficiently to find the relevant information sources.
- Determine authoritative, relevant and timely sources of information.



Global warming cartoons [Image]. (2010.). Retrieved August 1, 2016 from <http://www.azhaguboomi.org/images/cartoons5.jpg>

Learning Activities

2.1	Files	Tutorial 01 Student Brief.docx - Student Brief and Worksheet for Tutorial 01 (editable)
2.2	Files	Article - Receding water levels at Linggiu Reservoir.pdf - Tutorial 01: Article for Information Literacy Search
2.3	Files	Tutorial 01 Student Brief.pdf - Student Brief and Worksheet for Tutorial 01 (pdf format)
2.4	Multimedia	Lecture 1: Evidence Based Learning - John Oliver

Figure 1: Sample Lesson Plan for a Week/Topic

References

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